

### Remarks

Claims 28 and 30 were rejected by the Examiner as being anticipated by US Published Application 2002/0161468 (Liu). Of these claims, claim 28 is an independent claim from which claim 30 depends through claim 29 that is directly dependent from claim 28. Claim 28 will be discussed first.

Claim 28 has been amended in part to specify that:

the continuous beam of radiation has a wavelength capable of heating the one or more regions to form an image **having an operationally useful portion with a substantially uniform intensity**; and

the beam of radiation is scanned ... so that each point in the one or more regions receives an amount of thermal energy **effective to process** each of the one or more regions **at a substantially uniform temperature**.

From a reading of Liu no mention or suggestion could be found for the formation of an **image having an operationally useful portion with a substantially uniform intensity to process one or more substrate regions at a substantially uniform temperature**.

Claim 30, which depends from claim 28 through dependent claim 29, has also been amended to specify that "the **operationally useful portion of the image has** a dimension perpendicular to the scan direction of 1 cm or less." (emphasis added).

Support for these amendments to claims 28 and 30 can be found in the instant application at page 8, lines 12-24 with particular attention to lines 23 and 24 where it states "...an integrated intensity distribution uniformity of about  $\pm 2\%$  over **the operationally useful part of the image**." Attention is also directed to page 12, lines 7-19

with particular attention to lines 18 and 19 where it states "This results in a more uniform temperature profile in the substrate as image 100 is scanned over substrate 60." Further support and details to support the amendment to claims 28 and 30 can also be found from page 16, line 26 through page 18, line 16.

Accordingly, it is respectfully submitted that claims 28 and 30 are patentably distinguishable from Liu.

Claim 29 was rejected by the Examiner as being obvious from US Published Application 2002/0161468 (Liu) as applied to claim 28 and further in view of USP 4,370,175 (Levatter). Claim 29 is dependent from independent claim 28 thus, for this rejection to stand, Levatter not only has to disclose or suggest what is stated in claim 29, but also disclose the items that have been amended into claim 28 which it has been shown above are not disclosed by Liu.

From a reading of Levatter it is respectfully submitted that the features added to claim 28 by amendment are also not shown or suggested by Levatter. Therefore, claim 28 is also patentably distinguishable over Levatter, whether taken alone or in combination with Liu. Thus, based on the allowability of claim 28 alone places claim 29 in condition for allowance as well.

Additionally, the Examiner's attention is directed to the Liu's use of continuous laser technology, whereas Levatter is directed to pulsed laser technology. In the art, pulsed and continuous laser technologies are generally considered alternatives to each other (see Liu, paragraphs [0005] to [0008], and Levatter, the paragraph bridging columns 2 and 3).

It is also well known in the art that a more uniform temperature distribution can be obtained with a longer radiation pulse since the depth of heating is greater and

there is more time available during the pulse interval for lateral heat conduction to equalize temperatures across the region of the substrate. Further it is well known that it is impractical to extend laser pulse lengths over periods longer than a microsecond and over circuit areas of 5cm<sup>2</sup> or more since the energy per pulse becomes too high, and the laser and associated power supply needed to provide such high energy becomes too big and expensive. Thus it is hard to see how Liu and Levatter can be read together in the manner suggested by the Examiner.

Furthermore, even if the technology described by Liu were modifiable to use a uniform beam as described in Levatter, it would yield unacceptable variations in processing temperature which is not in keeping with claim 28 as amended. It is also well known in the art that uniform radiation will heat regions of a substrate containing circuit elements to nonuniform temperatures given the various surface conditions on the substrate. Thus, even if Liu and Levatter could be read together, there would not have been a reasonable expectation of success.

Paragraph [0006] of Liu, the section cited by the Examiner, merely mentions that an ideal process may have a thermal diffusion length of 5-100 microns and does not disclose or suggest an image dimension of 1 cm or less. While Liu describes that beam size can be modified relative to die size (see FIGS. 3-10 and accompanying text), upon a reading of Liu, no disclosure could be found for an image dimension of 1 cm or less perpendicular to the scan direction. As set forth in the instant application at FIGS. 1B and 1C and the accompanying text, image geometry is a factor that may contribute to the uniformity of the processing temperature.

Thus, with claims 28 and 30 amended as above, it is respectfully submitted that claim 28 is allowable and is generic to all of the species identified by the Examiner in the earlier issued restriction. Therefore it is further submitted that the withdrawal of claims 31-60 be reversed and that all of claims 28-60 be found to be allowable to the

Applicants with an amendment to claim 40 to replace "region" in step c. with one or more regions, and claim 42 to replace the first "the" in the last line of step e. with a. If those changes cannot be made by Examiner's Amendment, please call for telephone authorization to make those changes, and any others that the Examiner believes to be necessary to place all of the claims into condition for allowance.

Favorable action is respectfully requested.

Respectfully submitted,  
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by

  
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